<u>IN THE UNITED STATES PATENT & TRADEMARK OFFICE</u>

IN RE APPLICATION OF: :

TAKAMITSU YAMADA ET AL   : ATTN: NEW APPLICATION DIVISION

SERIAL NO: NEW APPLICATION   :
        (Based on PCT/JP00/05017)

FILED: HEREWITH   :

FOR: MOBILE COMMUNICATION   :
      SYSTEM, BASE STATION,
      MOBILE COMMUNICATION
      TERMINAL, AND
      RETRANSMISSION CONTROL
      METHOD

<u>PRELIMINARY AMENDMENT</u>

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to examination on the merits, please amend the above-identified application as

follows:

<u>IN THE SPECIFICATION</u>

Please amend the specification as shown in the attached marked-up copy to read as

follows:

Page 8, replace the text beginning at line 22 with the following paragraph:

--Further, according to a third aspect of the invention, there is provided a mobile

communication system of the above aspect, wherein the base station generates a

retransmission request signal of a packet data format including the uplink interference value,

and transmits the retransmission request signal to the mobile communication terminal that

has transmitted the erroneous packet, and the mobile communication terminal extracts the uplink interference value from the received retransmission request signal, compares the uplink interference value with a predetermined threshold value, [does not multiplex the retransmission data] --sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, and determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value.--

Page 11, replace the text beginning at line 13 with the following paragraph:

--Further, according to a sixth aspect of the invention, there is a provided a mobile communication system of the above aspect, wherein the base station compares the uplink interference value with a predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value, generates a retransmission request signal of a packet data format including the retransmission multiplex number, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet, and the mobile communication terminal extracts the retransmission multiplex number from the received retransmission request signal, and retransmits the transmission data according to the retransmission multiplex number.--

Page 15, replace the text beginning at line 2 with the following paragraph:

--Further, according to a tenth aspect of the present invention, there is provided a base station of the above aspect, the base station comprising:

a data detecting unit (corresponding to spectrum despreading demodulators 22-1 to 22-J, demodulators 23-1 to 23-J, and a data detector 24) that despreads and demodulates the received packet, extracts user data from a demodulated data signal thereby to always monitor a data error in the reception packets, and measures an uplink interference value when there has been a data error; a retransmission request generating unit (corresponding to a traffic control signal generator 25) that generates a retransmission request signal based on the measured uplink interference value; and a transmitting unit (corresponding to a spectrum spreading modulator 26, a carrier generator 27, and a transmitter 28) that transmits the retransmission request signal into a packet format, and outputs the retransmission request signal in the packet format.--

Page 17, replace the text beginning at line 4 with the following paragraph:

--Further, according to a thirteenth aspect of the invention, there is provided a base station of the above aspect, wherein the base station compares the uplink interference value with a predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value, generates a retransmission request signal of the packet data format including the retransmission multiplex number, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet.--

Page 22, replace the text beginning at line 5 with the following paragraph:

--Further, according to a nineteenth aspect of the invention, there is provided a mobile communication terminal of the above aspect, wherein the mobile communication terminal extracts the uplink interference value from the received retransmission request signal,

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compares the uplink interference value with the predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, and determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission where the uplink interference value is equal to or higher than the threshold value.--

IN THE CLAIMS

Please amend the claims as shown in the attached marked-up copy to read as follows:

--1. (Amended) A mobile communication system for carrying out a packet transmission based on the spread ALOHA system, the mobile communication system comprising a base station; and at least one mobile communication terminal, wherein,

the base station measures an uplink interference value of a transmission path when a data error has occurred in reception packets multiplexed by plurality, generates a retransmission request signal of a packet format based on the measured uplink interference value, and then transmits the retransmission request signal to a mobile communication terminal that has transmitted the erroneous packet, and

the mobile communication terminal outputs multiplexed transmission data as a transmission packet during a normal transmission, automatically divides the transmission data into parallel signals according to a retransmission multiplex number based on the retransmission request signal when the retransmission request signal has been received, multiplexes the parallel signal to generate a transmission packet for retransmission, and outputs the transmission packet to the base station.

3. (Amended) The mobile communication system according to claim 1, wherein

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the base station generates a retransmission request signal of a packet data format including the uplink interference value, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet, and

the mobile communication terminal extracts the uplink interference value from the received retransmission request signal, compares the uplink interference value with a predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value, generates a retransmission request signal of a packet data format including the retransmission multiplex number, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet, and

the mobile communication terminal extracts the retransmission multiplex number from the received retransmission request signal, and retransmits the transmission data according to the retransmission multiplex number.

6. (Amended) The mobile communication system according to claim 1, wherein

the base station compares the uplink interference value with a predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value, generates a retransmission request signal of a packet data format including the retransmission multiplex number, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet, and

the mobile communication terminal extracts the retransmission multiplex number from the received retransmission request signal, and retransmits the transmission data according to the retransmission multiplex number.

10. (Amended) The base station according to claim 9 comprising:

a data detecting unit that despreads and demodulates the received packet, extracts user data from a demodulated data signal thereby to always monitor a data error in the reception packets, and measures an uplink interference value when there has been a data error;

a retransmission request generating unit that generates a retransmission request signal based on the measured uplink interference value; and

a transmitting unit that transmits the retransmission request signal in a packet format.

13. (Amended) The base station according to claim 9, wherein

the base station compares the uplink interference value with a predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value, generates a retransmission request signal of a packet data format including the retransmission multiplex number, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet.

17. (Amended) The mobile communication terminal according to claim 16 comprising:

a series-parallel converting unit that transmits the internally generated transmission data into parallel signals according to a predetermined multiplex number;

a transmitting unit that spreading modulates the plurality of parallel signals,

multiplexes the modulation signals by a predetermined method, and outputs the multiplexed modulation signals as a transmission packet;

a retransmission request detecting unit that receives a retransmission request signal in the packet format, and despreads and demodulates this signal thereby to detect a retransmission request signal; and

a control unit that decides a multiplex number of the parallel signals used by the series-parallel converting unit, based on the retransmission request signal.

19. (Amended) The mobile communication terminal according to claim 16, wherein the mobile communication terminal extracts the uplink interference value from the received retransmission request signal, compares the uplink interference value with a predetermined threshold value, sets the retransmission multiplex number equal to 1 when the uplink interference value is lower than the threshold value, and determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value.--

REMARKS

In view of the present amendment, which is considered to be an integral part of the application as filed, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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IN THE SPECIFICATION

Please amend the specification as follows:

Page 8, replace the text beginning at line 22 with the following paragraph:

--Further, according to a third aspect of the invention, there is provided a mobile communication system of the above aspect, wherein the base station generates a retransmission request signal of a packet data format including the uplink interference value, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet, and the mobile communication terminal extracts the uplink interference value from the received retransmission request signal, compares the uplink interference value with a predetermined threshold value,[does not multiplex the retransmission data] --sets the retransmission multiplex number equal to 1-- when the uplink interference value is lower than the threshold value, and determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value.--

Page 11, replace the text beginning at line 13 with the following paragraph:

--Further, according to a sixth aspect of the invention, there is a provided a mobile communication system of the above aspect, wherein the base station compares the uplink interference value with a predetermined threshold value,[does not multiplex the retransmission data] --sets the retransmission multiplex number equal to 1-- when the uplink

interference value is lower than the threshold value, determines a retransmission multiplex

number to be in the same number as the multiplex number during a normal transmission

when the uplink interference value is equal to or higher than the threshold value, generates a

retransmission request signal of a packet data format including the retransmission multiplex

number, and transmits the retransmission request signal to the mobile communication

terminal that has transmitted the erroneous packet, and the mobile communication terminal

extracts the retransmission multiplex number from the received retransmission request signal,

and retransmits the transmission data according to the retransmission multiplex number.--

Page 15, replace the text beginning at line 2 with the following paragraph:

--Further, according to a tenth aspect of the present invention, there is provided a base

station of the above aspect, the base station comprising:

a data detecting unit (corresponding to spectrum despreading demodulators 22-1 to

22-J, demodulators 23-1 to 23-J, and a data detector 24) that despreads and demodulates the

received packet, extracts user data from a demodulated data signal thereby to always monitor

a data error in the reception packets, and measures an uplink interference value when there

has been a data error; a retransmission request generating unit (corresponding to a traffic

control signal generator 25) that generates a retransmission request signal based on the

measured uplink interference value; and a transmitting unit (corresponding to a spectrum

spreading modulator 26, a carrier generator 27, and a transmitter 28) that [converts]

--transmits-- the retransmission request signal into a packet format, and outputs the

retransmission request signal in the packet format.--

Page 17, replace the text beginning at line 4 with the following paragraph:

--Further, according to a thirteenth aspect of the invention, there is provided a base

station of the above aspect, wherein the base station compares the uplink interference value

with a predetermined threshold value, [does not multiplex the retransmission data] --sets the retransmission multiplex number equal to 1-- when the uplink interference value is lower than the threshold value, determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value, generates a retransmission request signal of the packet data format including the retransmission multiplex number, and transmits the retransmission request signal to the mobile communication terminal that has transmitted the erroneous packet.--

Page 22, replace the text beginning at line 5 with the following paragraph:

--Further, according to a nineteenth aspect of the invention, there is provided a mobile communication terminal of the above aspect, wherein the mobile communication terminal extracts the uplink interference value from the received retransmission request signal, compares the uplink interference value with the predetermined threshold value, [does not multiplex the retransmission data] --sets the retransmission multiplex number equal to 1-- when the uplink interference value is lower than the threshold value, and determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission where the uplink interference value is equal to or higher than the threshold value.--

IN THE CLAIMS

Please amend the claims as follows:

--1. (Amended) A mobile communication system for carrying out a packet transmission based on the spread ALOHA system, the mobile communication system comprising --a base station; and at least one mobile communication terminal, wherein,--

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[a] --the -- base station [that] measures an uplink interference value of a transmission

path when a data error has occurred in reception packets multiplexed by plurality, generates a

retransmission request signal of a packet format based on the measured uplink interference

value, and then transmits the retransmission request signal to a mobile communication

terminal that has transmitted the erroneous packet, and

[a] --the-- mobile communication terminal [that] outputs multiplexed transmission

data as a transmission packet during a normal transmission, automatically divides the

transmission data into parallel signals according to a retransmission multiplex number based

on the retransmission request signal when the retransmission request signal has been

received, multiplexes the parallel signal to generate a transmission packet for retransmission,

and outputs the transmission packet to the base station.

3. (Amended) The mobile communication system according to claim 1, wherein

the base station generates a retransmission request signal of a packet data format

including the uplink interference value, and transmits the retransmission request signal to the

mobile communication terminal that has transmitted the erroneous packet, and

the mobile communication terminal extracts the uplink interference value from the

received retransmission request signal, compares the uplink interference value with a

predetermined threshold value, [does not multiplex the retransmission data]--sets the

retransmission multiplex number equal to 1-- when the uplink interference value is lower

than the threshold value, determines a retransmission multiplex number to be in the same

number as the multiplex number during a normal transmission when the uplink interference

value is equal to or higher than the threshold value, generates a retransmission request signal

of a packet data format including the retransmission multiplex number, and transmits the

retransmission request signal to the mobile communication terminal that has transmitted the

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erroneous packet, and

the mobile communication terminal extracts the retransmission multiplex number

from the received retransmission request signal, and retransmits the transmission data

according to the retransmission multiplex number.

6. (Amended) The mobile communication system according to claim 1, wherein

the base station compares the uplink interference value with a predetermined

threshold value, [does not multiplex the retransmission data] --sets the retransmission

multiplex number equal to 1-- when the uplink interference value is lower than the threshold

value, determines a retransmission multiplex number to be in the same number as the

multiplex number during a normal transmission when the uplink interference value is equal

to or higher than the threshold value, generates a retransmission request signal of a packet

data format including the retransmission multiplex number, and transmits the retransmission

request signal to the mobile communication terminal that has transmitted the erroneous

packet, and

the mobile communication terminal extracts the retransmission multiplex number

from the received retransmission request signal, and retransmits the transmission data

according to the retransmission multiplex number.

10. (Amended) The base station according to claim 9 comprising:

a data detecting unit that despreads and demodulates the received packet, extracts user

data from a demodulated data signal thereby to always monitor a data error in the reception

packets, and measures an uplink interference value when there has been a data error;

a retransmission request generating unit that generates a retransmission request signal

based on the measured uplink interference value; and

a transmitting unit that [converts] --transmits-- the retransmission request signal in a

packet format.

13. (Amended) The base station according to claim 9, wherein

the base station compares the uplink interference value with a predetermined

threshold value, [does not multiplex the retransmission data] --sets the retransmission

multiplex number equal to 1-- when the uplink interference value is lower than the threshold

value, determines a retransmission multiplex number to be in the same number as the

multiplex number during a normal transmission when the uplink interference value is equal

to or higher than the threshold value, generates a retransmission request signal of a packet

data format including the retransmission multiplex number, and transmits the retransmission

request signal to the mobile communication terminal that has transmitted the erroneous

packet.

17. (Amended) The mobile communication terminal according to claim 16

comprising:

a series-parallel converting unit that [converts] --transmits-- the internally generated

transmission data into parallel signals according to a predetermined multiplex number;

a transmitting unit that spreading modulates the plurality of parallel signals,

multiplexes the modulation signals by a predetermined method, and outputs the multiplexed

modulation signals as a transmission packet;

a retransmission request detecting unit that receives a retransmission request signal in

the packet format, and despreads and demodulates this signal thereby to detect a

retransmission request signal; and

a control unit that decides a multiplex number of the parallel signals used by the

series-parallel converting unit, based on the retransmission request signal.

19. (Amended) The mobile communication terminal according to claim 16, wherein the mobile communication terminal extracts the uplink interference value from the received retransmission request signal, compares the uplink interference value with a predetermined threshold value, [does not multiplex the retransmission data] --sets the retransmission multiplex number equal to 1-- when the uplink interference value is lower than the threshold value, and determines a retransmission multiplex number to be in the same number as the multiplex number during a normal transmission when the uplink interference value is equal to or higher than the threshold value.--